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ABSTRACT

The present study compares the attributions of young children 5 to 6.5 years of age with those of adult subjects 20 to 30 years of age, who were engaged in the same competitive situation. It was hypothesized that sex differences would occur in the sample of adults but not in the sample of children. Believing outcomes to be determined by either chance or skill, 192 subjects competed against each other in pairs, using an electronic game designed by the experimenters. Actually, outcomes were controlled. Poker chips were wagered prior to each trial game, and subjects competed against a same- or other-sex competitor. Outcome measures, in addition to win/lose, included an analysis of bets across trials, skill/chance conditions, and subjects' responses to a series of questions concerning their own and others' performances. Results revealed significant sex differences in the patterns of adult subjects that were not found in those of the children. Outcome, sex of subject, and sex of opponent affected significantly both bets and attributions of adults; skill/chance perceptions of the game produced no significant effects. (Author/RH)

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Young children's attributions: Pink and blue are for adults only*

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Abstract

Subjects (N=192) competed against each other in pairs using an electronic game designed by the experimenters. Subjects believed the outcome to be determined by either chance ("guess which light will come on") or skill ("be the first to press the button after the light comes on"). Outcomes (win or lose) were actually controlled by the experimenters and included two groups: One-half were children, ages five to six and one-half; one-half were adults between twenty and thirty years of age. Poker chips were wagered prior to each trial game and subjects competed against a same or other sex competitor.

Outcome measures, in addition to win/lose, included an analysis of bets across trials, skill/chance conditions and subjects' responses to a series of questions. Results revealed significant sex differences in the patterns of adult subjects not found in the children. Outcome, sex and sex of opponent affected significantly both bets and attributions of adults whereas skill/chance perceptions of the game produced no significant effects.

Young children's attributions: Pink and blue
are for adults only

Attribution theory begins with the assumption that expectancies are important determinants of behavior (Crandall & Rabson, 1960; Rotter, 1966). One finding that appears quite consistent in a wide variety of studies is that, among adult subjects, attributions differ by sex. Females seem more prone to use luck as an explanation for both success and failure (Bar-Tal & Freize, 1974; Deaux & Farris, 1974). Males, in contrast tend to attribute their successes to ability but are reluctant to lower their ability estimates following failure (Deaux & Farris, 1976; McMahon, 1971).

Attributional studies of children have shown similar sex differences. Dweck and Reppucci (1973) and Nicholls (1975) found that girls place less emphasis than boys on motivational factors as determinants of failure and are more apt than boys to cite a lack of ability for poor performance. Girls are also more prone than boys to show decreased persistence or impaired performance following failure (Butterfield, 1965; Crandall & Rabson, 1960; Dweck & Gilliard, 1975; Nicholls, 1975; Veroff, 1969).

Studies generally have focused on children above eight years of age (Butterfield, 1965; Bronfenbrenner, 1970; Dweck, 1975; Dweck, Davidson, Nelson & Enna, 1976; Nicholls, 1975). The present study compares the attributions of young children, ages five to six and one-half, with adult subjects when engaging in the same competitive situation. It was hypothesized that sex defferences would occur with the adult control subjects but not with the young children.

METHOD

Subjects. Subjects (N=192) included children from kindergartens and first grades in Connecticut public schools ranging in age from five to six and one-half. A comparison group of ninety-six adult subjects was drawn from various courses in a Connecticut State College. The adult population was a reletively homogeneous college population, the average subject being in or her early twenties.

Apparatus. An electronic game was constructed and housed in a cabinet approximately 9 x 9 x 15 inches. The front of the device had two dials, a 0-150 volt AC meter and three pilot lights. The meter and one of the pilot lights served no actual purpose except to impress the subjects. The other two pilot lights--red and green--indicated win-lose. At the rear of the cabinet were two wires approximately six feet in length which were enclosed in two boxes, each of which had push-bottom switches mounted on them (depending on condition). One of the switches was used by each subject in playing the game. Control by the experimenter was permitted by using two wires approximately six feet in length, which terminated into two silent micro-switches mounted on a concealed wooden board.

In addition, there were twenty red and twenty white poker chips which subjects used to make bets before each trial. Mimeographed scoring sheets were used by the experimenters to record subjects' bets and answers to questions.

Procedure. Subjects were paired in the sex-combination desired and accompanied from classrooms to the experimental room by the experimenters. Adult subjects were asked their age upon arrival; children's names and ages

were elicited in transit and confirmed by asking: "Let's see now, your name is _____, and you are _____ years old. Right?" When subjects were seated in the experimental room they were randomly assigned to either the win or lose condition.

Subjects were given the following instructions:

We are going to play a game. The game we are going to play works like this:

(Skill Condition). Each time I count one, two, three, I want to see which of you can be first to press the button on your box. Remember, you are not to press the button before I say three.

(Chance Condition).[1] Each time I count one, two, three, I want to see which of you can be first to press the right button. As you can see, there are two buttons on your box. Therefore you must be both faster than the other player and guess which one is the right button each time. Only one button will work each time we play, and it will not always be the same button. Remember, you are not to press the button before I say three.

We are going to play the same game five times. If you (pointing to one of the subjects) will press the button (or one of the two buttons) on your box, you will see that the light (red or green) will light up. Now if you (pointing to the second subject) will press the button (or one of the two buttons) on your box, you will see that the light (red or green) will light up. Okay, now when the red light comes on, it means you (pointing to one subject) have won, and when the green light comes on (pointing to the other subject) it means you have won. Only the winner's light will light up.

Now, there's one more thing. Before each try I would like you to make a bet using the poker chips in front of you. (The experimenter picks up the chips and demonstrates.) If you really are not sure if you are going to win this time, perhaps you will want to bet only one or two (experimenter puts one or two chips in the center of the table and then puts them back); if you are really very sure you will win, perhaps you will want to bet three, four, five, or even more. (Experimenter again demonstrates.) In other words, the more you are sure you will win, the more you will bet, and the less sure you are the less you will bet. Okay? Each time we play, you must bet at least one chip. Each game will go to ten tries unless either player uses up all of his or her chips. If a player runs out of chips, the game ends then. We will play five games altogether. Okay let's try it. [2]

All subjects were given two practice trials before the first game began. One subject won the first practice trial, and the other subject the second. Upon commencing with the actual games, the person placing the first bet was alternated with subjects in the "win"/"lose" condition as pairs of subjects were run.

During each of the five games, the experimenter controlled outcomes--using the two silent microswitches. These were located behind the device and in front of the experimenter. The subjects sat about 6 feet in front of the device.

The outcome sequence for each game, assuming the game lasted all ten trials, was as follows:

Win condition (W=win; L=lose)

Game 1: W, W, L, W, L, W, W, L, W, W

Game 2: W, W, L, W, L, W, W, L, W, W

Game 3: W, L, W, W, W, W, L, W, W, L

Game 4: W, L, W, L, L, W, W, L, W, L

Game 5: L, W, L, L, W, L, L, W, L, L

Since subjects were tested in pairs, the outcome for the person in the lose condition was the opposite of the person in the win condition across the entire outcome sequence.

Dependent measures. The first dependent measure recorded bets across trials for each game for both players. Answers to four questions provided four other dependent variables following completion of the games according to whether the subject had been assigned to the win or lose condition. Each subject was interviewed separately.

The following questions were asked subjects in the win condition:

1. Did you win because you were good at this or were you just lucky?
2. Did he/she lose because he/she was not good at this game or was he/she just not lucky?
3. Would you do better and better if you played this a lot?
4. Would you do better and better if you tried harder and harder each time?

For subjects in the lose condition the following questions were asked:

1. Did you lose because you were not good at this kind of game, or were you just not lucky this time?

2. Did he/she win because he/she is good at this kind of game, or was he/she just lucky?

3. Would you do better and better if you played this a lot?

4. Would you do better and better if you tried harder and harder each time?

Design. In Figure 1 it can be seen that a 2 x 2 x 2 x 4 design was utilized in which a subject could be (1) an adult or child, (2) in the skill or chance game condition, (3) in the win or lose outcome condition, or (4) a player in one of four sex combinations. Sex combination possibilities were (1) a male winner vs. a male loser, (2) a male winner

(Place Figure 1 about here)

vs. a female loser, (3) a female winner vs. a male loser, and (4) a female winner vs. a female loser.

RESULTS

Bets across games: Dependent measure 1. (the mean bet of each subject for five separate games). A five-way ANOVA for repeated measures (games, age category as either adult or child, condition as either skill or chance, outcome as either win or lose and sex combination) yielded the following results:

A. There was a significant difference between adults and children in mean bets across trials ($F=6.493$, $p<.05$). As can be seen in Table 1, this difference was largely accounted for by adult males playing against a male opponent. A Scheffe post hoc comparison showed that the means in

(Place Table 1 about here)

this sex combination differed significantly by age category ($F=3.434$, $p<.05$).

B. Sex combination by itself showed no significant difference in mean bet; however, there was a significant interaction between age category (adult or child) and sex combination ($F=4.962$, $p<.003$).

C. In the skill and chance condition no significant difference was found in bets across games between subjects.

D. Relative to outcome (win or lose) there was a significant difference in mean bets across games ($F=189.004$, $p<.001$). As can be seen in Table 2 mean bets in the win condition consistently rose while mean bets in the lose condition consistently decreased.

(Place Table 2 about here)

E. Outcome by sex combination showed no significant interaction.

Questions concerning attributions: Dependent measures 2-5.

Figures 2-9 depict attributional differences between adults and children. In general, while adults revealed sex differences, there was no significant sex difference in attributions of children.

(Place Figures 2-9 about here)

Question 1 concerned the issue of the subject's own attributions for his or her own outcomes. It is apparent in Table 3 that adult male winners who have played against adult male opponents attribute their outcome entirely to skill. When an adult male wins over an adult female it is still frequently attributed to skill, but about one-third of the male adult winners in this condition attribute their outcome to luck. Only one-third of the female adult winners attributed their outcome to skill when their opponent was a male, and when a female adult in the win condition had a female opponent, 83.3% attributed their outcome to luck.

(Place Table 3 about here)

Winning adult males made significantly different attributions depending on the sex of their opponent ($\chi^2=4.51$, $p=<.05$). Winning adult females' responses did not differ significantly whether their opponent was male or female. Overall winning adult males differed significantly from winning adult females ($\chi^2=16.44$, $p=<.001$).

There were no significant sex differences in the responses of winning children. On the average, across all sex combinations, about 65% of child winners attributed their outcome to skill, regardless of sex of opponents.

Losers responded to Question 1 by making chance attributions. That is, since they lost, they attributed the outcome to lack of luck rather than lack of skill. This was true of both age groups. While 96% of the losing adults made this attribution only 69% of the children did so. Both adults and children used the chance attribution most frequently when the subject was a female loser whose opponent had been a female. However, there were no significant differences in loser's attributional responses to Question 1 either between age groups or by sex.

Question 2 concerned the attributions a subject made about the outcome for his or her opponent. As can be seen in Figures 8 and 9 and Table 4, both adults and children in both the win and lose condition made chance

(Place Table 4 about here)

(lack of luck) attributions. One noticeable exception was the case of a winning adult male who had had a male opponent. This group made the (lack of) skill attribution 67% of the time. Winning adult males made significantly different attributions according to the sex of their opponent ($\chi^2=8.70$, $p=<.01$). Overall winning adult males differed significantly

from winning adult females (χ^2=5.77, p=<.05). Overall male and female losers differed significantly on their responses (χ^2=4.07, p=<.05) while there were no significant differences between male and female children in the loser condition.

Question 3 concerned the issue of whether or not practice would improve the outcomes in the future. As can be seen in Figures 2 and 3

(Place Table 5 about here)

and Table 5, while all of the children indicated that they thought it would, only 25% of adult female winners with male opponents thought it would. Overall adult winning males differed from adult female winners significantly (χ^2=12.80, p=<.001).

In the case of losers, almost 60% of adult males who lost to other males thought practice would help; this increased to 100% if the adult male lost to a female. Only 25% of adult females who had male opponents thought practice would help, while this expectqtion increased to 50% when the winner was an adult female. Thus, losing adult males with a male opponent differed significantly from losing adult males with female opponents (χ^2=6.02, p=<.05). Overall losing adult males differed significantly from losing adult females (χ^2=8.57, p=<.01).

Question 4 concerned the issue of whether or not increasing effort would improve outcomes. Children thought it would while adults differed

(Place Table 6 about here)

according to sex (See Figures 4 and 5 and Table 6). For adult winners, males with male opponents generally thought it would help (75%), while 60% of winning adults whose opponent was a female thought so. Only 33% of winning adult females thought so regardless of the opponent's sex. Overall winning

adult males and females differed significantly ($\chi^2 = 5.33$, $p = <.05$).

For losers 33% of adult males with male opponents thought increased effort would improve their outcome compared to 75% of losing adult males with female opponents. Only 8.3% of losing adult females who had male opponents and about 17% of losing adult females with female opponents thought increased effort would improve their outcome. Thus losing adult males differed significantly depending on the sex of their opponent ($\chi^2 = 4.19$, $p = <.05$) and overall losing adult males and females differed significantly ($\chi^2 = 9.37$, $p = <.01$).

DISCUSSION

The results strongly support the hypothesis that sex differences in attributions would occur in adult subjects but not in the children who served as subjects in this study. On the first dependent measure, mean bet across games, there were no significant sex differences in the mean bets of children regardless of the sex of the subject and/or his or her opponent. Male adult subjects who had male opponents made significantly higher bets than did adults in any other sex combination condition.

Concerning attributional Questions 1 and 2, which dealt with the issues of attributions concerning one's own outcome and the outcome of one's opponent respectively, there were no significant sex differences in the attributions of children. In the case of adults, however, winning adult males made significantly different attributions than did females on both Questions 1 and 2. Losing adult males and females also differed significantly on their attributions to Question 2. No significant sex differences were found among adult losers' attributions to Question 1.

Attributional Questions 3 and 4 which concerned the affects of practice and effort on future outcomes showed no sex differences for children. In fact, all

of the children choose the skill attribution in responding to these two questions. Both adult winners and losers differed significantly by sex on their attributions concerning these questions.

In addition to the overall sex differences, it is also clear that the attributions that adults made not only differ in relation to their own sex, but, at least in a one-to-one competitive situation, were strongly influenced by the sex of one's opponent. For example, in answering Question 1, male winners who had a male opponent, all attributed their outcome to their own skill. Only two-thirds of the adult male winners attributed their outcome to their own skill when their opponent was a female. When an adult female defeated a male opponent, her own skill was cited as the reason for the outcome only one-third of the time. Finally, adult female winners who had female opponents attributed their outcomes to their own skill only about 16% of the time.

The evoking of skill attributions for one's own outcomes, if male, and luck attributions, if female, was generally quite consistent. It appears, however, that the notion that males are skillful while females are luck dependent was largely responsible for the sex differences linked to the sex of one's opponent rather than simply the subject's own sex. As an example, 100% of adult male winners who had male opponents compared to 75% of adult winning males who had female opponents thought that they would improve with practice (Question 3). It appears that winning adult males feel that when competing against other males their own past record of success insures them that skill is the key to winning while those who win over females are not as certain of the power of skill. On the other hand, when an adult male lost to a male, less than 60% thought that practice would improve future outcomes. However, when adult males lost to a female opponent, 100% thought it would. Male losers, then, seem to feel less sure that

they can muster sufficient skill to improve their level of competence against other males but feel that practice will enable them to acquire enough skill to overcome female opponents. Similarly, only 25% of female adult losers responding to Question 3 thought practice would help when they had lost to a male, but 50% thought so if their opponent had been female. Perhaps females believed that they couldn't add sufficient skill to their "luck" to defeat males, but it might make a difference when playing females.

CONCLUSION

Results supported the notion that sex differences in adult attributional patterns are the result of learned expectancies. Further, the co-variation of adult attributions with the sex of the opponent suggests that, in the same situation, attributions may vary systematically relative to gender. For example, it is of interest that when males win over female competitors they tend to lower their skill attributions. This finding suggests that female non-skill attributions may be "contagious". Also of interest are the low-skill attributions of winning females over other females, which finding suggests the need for further research particularly on women and competitiveness.

Reference Notes

1. It should be noted that even in the chance condition, some element of skill could logically be perceived as necessary. Although selection of the "right" button under these circumstances should be perceived as a chance situation, if both subjects chose the "right" button, "being first" could correctly be perceived as skill dependent. Compared to the one button used in the skill condition, however, requiring subjects to choose one of two buttons under circumstances where the "right" button is constantly changing, unknown and presumably unknowable to subjects before hand, seems to satisfy the requirements for a task to be perceived as chance determined.
2. Mischel et al. (1974) made note of a special problem when eliciting information from very young children. Asked a given question and required to answer "yes" or "no", young children, not infrequently, will adopt a pattern of "yes" responses. Similarly, the mere sequence of response choices has been shown to have an influence on the responses of young children. Therefore, when asking the four questions with the kindergarten and first grade subjects, questions 1 and 2 were alternately asked in this form: "Did you win because you were just lucky, or because you were good at this?" Questions 3 and 4, which were the same for both winners and losers, were asked alternately in this form: "If you didn't get to play this game again for a long time would you do as well as if you did get to play it a lot?", and, "Do you think you would do less well if you didn't try as hard each time you played this game?"

References

Bar-Tal, D. & Frieze, I. Achievement motivation and gender as determinants of attributions for success and failure. Unpublished manuscript, University of Pittsburg, 1974.

Bronfenbrenner, U. Reactions to social pressure from adults versus peers among Soviet day school and boarding school pupils in the perspective of an American sample. Journal of Personality and Social Psychology, 1970, 15, 179-189.

Butterfield, E. The role of competence motivation in interrupted task recall and repetition choice. Journal of Experimental Child Psychology, 1965, 2, 354-370.

Crandall, V. & Rabson, A. Children's repetition choices in an intellectual achievement situation following success and failure. Journal of Genetic Psychology, 1960, 97, 53-66.

Deaux, K. & Farris, E. Attributing causes for one's performance: The effect of sex, norms, and outcome. Unpublished manuscript, Purdue University, 1974.

Dweck, C. The role of expectations and attributions in the alleviation of learned helplessness. Journal of Personality and Social Psychology, 1975, 31, 674-685.

Dweck, C., Davidson, W., Nelson, S. & Enna, B. Sex differences in learned helplessness: II. The contingencies of evaluative feedback in the classroom; and III. An experimental analysis. Journal of Personality and Social Psychology, 1976.

Dweck, C. & Gilliard, D. Expectancy statements as determinants of reactions to failure: Sex differences in persistence and expectancy change. Journal of Personality and Social Psychology, 1975, 32, 1077-1088.

Dweck, C. & Reppucci, N. Learned helplessness and reinforcement responsibility in children. Journal of Personality and Social Psychology, 1973, 25, 109-116.

McMahan, I. D. Sex differences in expectancy of success as a function of the task. Paper presented at the Eastern Psychological Association, 1975.

Mischel, W., Zeiss, R. & Zeiss, A. Internal-external control and persistence: Validation and implications of the Stanford Preschool Internal-External Scale. Journal of Personality and Social Psychology, 1975, 29, 265-278.

Nicholls, J. Causal attributions and other achievement related cognitions: Effects of task, outcome, attainment value and sex. Journal of Personality and Social Psychology, 1975, 31, 379-389.

Rotter, J. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80, (1, Whole No. 609).

Veroff, J. Social comparison and the development of achievement motivation. In C. P. S. Smith (Ed.), Achievement-related motives in children.

Table 1

Mean bet across games
Sex combination by age category

AGE CATEGORY	SEX COMBINATION				
	M vs M	M vs F	F vs M	F vs F	
	3.364	2.660	2.502	2.802	[Adults]
	2.257	2.585	2.785	2.344	[Children]
	F=3.434, p.< .05	F= .595, n.s.	F= .016, n.s.	F= .224, n.s.	Scheffé post-hoc comp.

(df = 3, 160)

Table 2

Mean bet across games
Games by Outcome

OUTCOME	GAMES					
	Game 1	Game 2	Game 3	Game 4	Game 5	
WIN	2.339	2.773	3.381	3.863	4.990	
LOSE	2.267	2.093	1.872	1.636	1.413	
	F= .014, n.s.	F= 1.147, n.s.	F= 6.397, p.<.001	F= 13.895, p.<.001	F= 35.84, p.<.001	Scheffé post-hoc comp.

(df = 4, 160)

Table 3

Response to Question 1
Attribution for subjects' own outcome
(skill or luck) Adults vs children

A. Overall comparison of adults vs children: $\chi^2 = 1.08$, n.s.

B. Winners:

ADULTS

WAMM[1] vs WAMF: $\chi^2 = 4.51$, $p. < .05$

WAFM vs WAFF: $\chi^2 = 0.88$, n.s.

WAM vs WAF : $\chi^2 = 16.44$, $p. < .001$

CHILDREN

WCMM vs WCMF: $\chi^2 = 0.75$, n.s.

WCFM vs WCFF: $\chi^2 = 0.17$, n.s.

WCM vs WCF : $\chi^2 = 0.09$, n.s.

C. Losers

ADULTS

LAMM vs LAMF : (100% chose the luck attribution)

LAFM vs LAFF : $\chi^2 = 1.90$, n.s.

LAM vs LAF : (All but 2 S's chose the luck attribution)

CHILDREN

LCMM vs LCMF : $\chi^2 = 0.88$, n.s.

LCFM vs LCFF : $\chi^2 = 1.49$, n.s.

LCM vs LCF : $\chi^2 = 0.40$, n.s.

[1] For four letter group identifiers, the first letter indicates outcome, the second age category, the third underlined letter the sex of the subject, and the fourth the sex of his or her opponent. Thus WAMM = winning adult males who had male opponents, LCFF = losing child females who had female opponents. Three letter group identifiers are exactly the same except that the sex of the opponent is not considered. Thus LCM = losing child males, etc.

Table 4

Response to Question 2

Attributions concerning opponent's outcome (skill vs luck) Adults vs children

A. Overall comparison of adults vs children $\chi^2 = 0.57$, n.s.

B. Winners:

ADULTS

WAMM vs WAMF : $\chi^2 = 8.70$, $p < .01$

WAFM vs WAFF : $\chi^2 = 0.88$, n.s.

WAM vs WAF : $\chi^2 = 5.77$, $p < .05$

CHILDREN

WCMM vs WCMF : $\chi^2 = 3.55$, n.s.

WCFM vs WCFF : $\chi^2 = 0.88$, n.s.

WCM vs WCF : (responses exactly the same)

C. Losers:

ADULTS

LAMM vs LAMF : (100% chose the luck attribution)

LAFM vs LAFF : (responses exactly the same)

LAM vs LAF : $\chi^2 = 4.07$, $p < .05$

CHILDREN

LCMM vs LCMF : $\chi^2 = 0.88$, n.s.

LCFM vs LCFF : $\chi^2 = 1.49$, n.s.

LCM vs LCF : $\chi^2 = 0.11$, n.s.

Table 5

Responses to Question 3
Practice would vs would not change
outcome

Comparison of adults only, 100% of the children chose the skill [practice would help] attribution.

A. Winners:

WAMM vs WAMF $\chi^2 = 3.14$, n.s.

WAFM vs WAFF $\chi^2 = 1.60$, n.s.

WAM vs WAF $\chi^2 = 12.80$, $p < .001$

B. Losers:

LAMM vs LAMF $\chi^2 = 6.02$, $p < .05$

LAFM vs LAFF $\chi^2 = 1.60$, n.s.

LAM vs LAF $\chi^2 = 8.57$, $p < .01$

Table 6

Responses to Question 4

Increased effort would vs would not change outcome

Comparison of adults only. 100% of the children chose the skill [increased effort would help] attribution

A. Winners

WAMM vs WAMF $\chi^2 =$ 0.75, n.s.

WAFM vs WAFF $\chi =$ (responses exactly the same)

WAM vs WAF $\chi^2 =$ 5.33, $p < .05$

B. Losers:

LAMM vs LAMF $\chi^2 =$ 4.19, $p < .05$

LAFM vs LAFF $\chi^2 =$ 0.22, n.s.

LAM vs LAF $\chi^2 =$ 9.37, $p < .01$

SKILL			CHANCE		
WIN	LOSE		WIN	LOSE	
male	male		male	male	CHILDREN
male	female		male	female	
female	male		female	male	
female	female		female	female	
male	male		male	male	ADULTS
male	female		male	female	
female	male		female	male	
female	female		female	female	

Figure 1. Design of the study

Q1 (Winners) I won because I was good at this

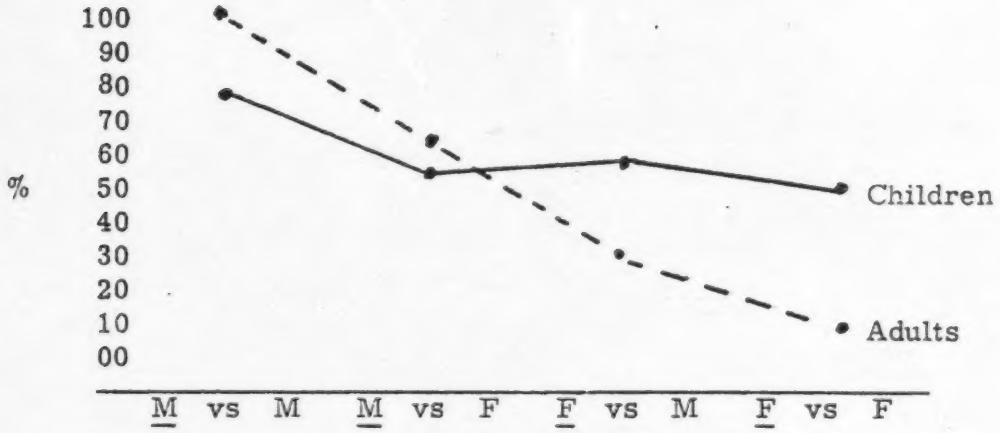

Figure 2. Percentage of winners making skill attribution by sex combination and age category. Sex of winner is underscored.

Q1 (Losers) I lost because I was not good at this

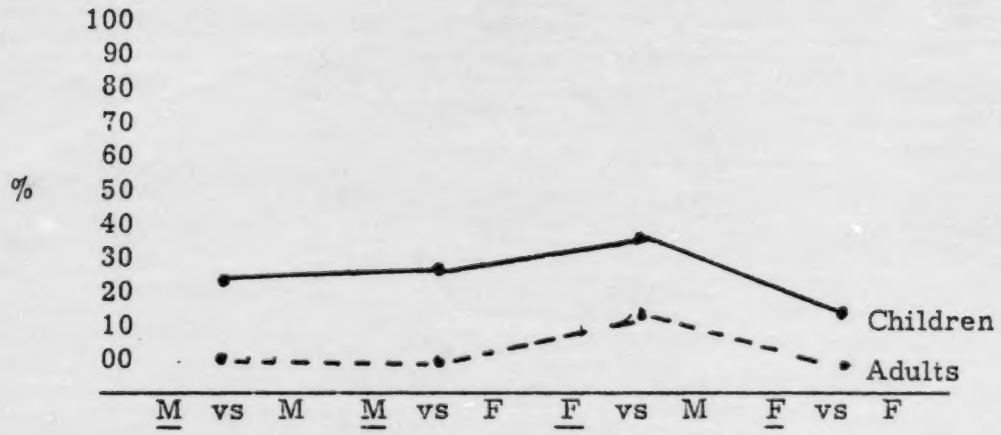

Figure 3. Percentage of losers making a (lack of) skill attribution by sex combination and age category. Sex of loser is underscored.

Q2 (winners) The other person lost because he/she was not good at this

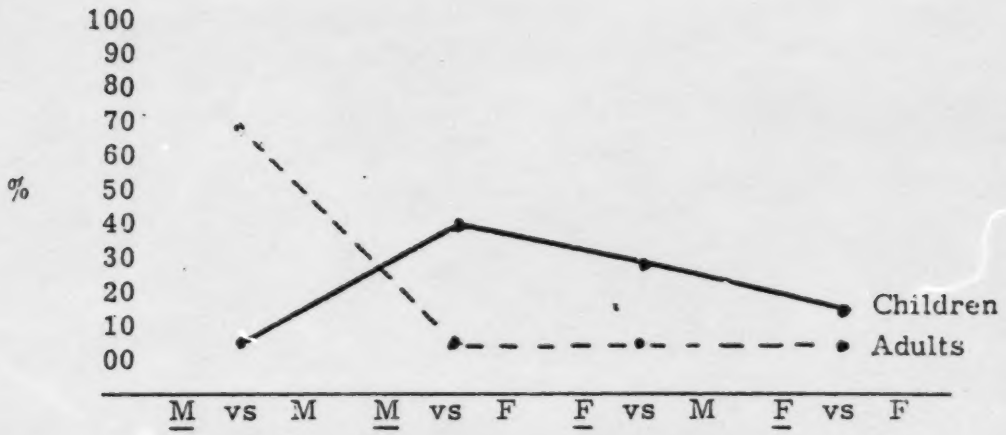

Figure 4.. Percentage of winners using a (lack of) skill attribution for the other player's outcomes by sex combination and age category. Sex of winner is underscored.

Q2 (Losers) The other person won because he was good at this

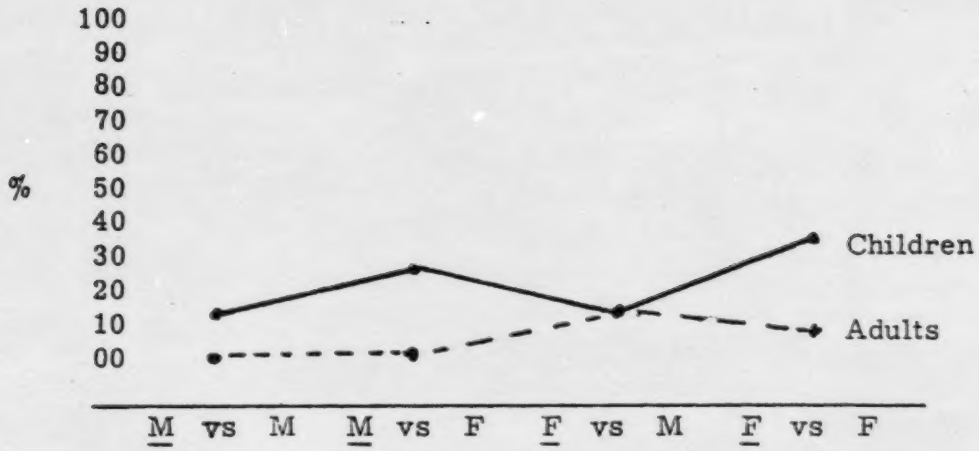

Figure 5. Percentage of losers making a skill attribution concerning the outcomes of the other, winning player by sex combination and age category. Sex of loser is underscored.

Q3 (Winners) I would get better and better if I played this a lot

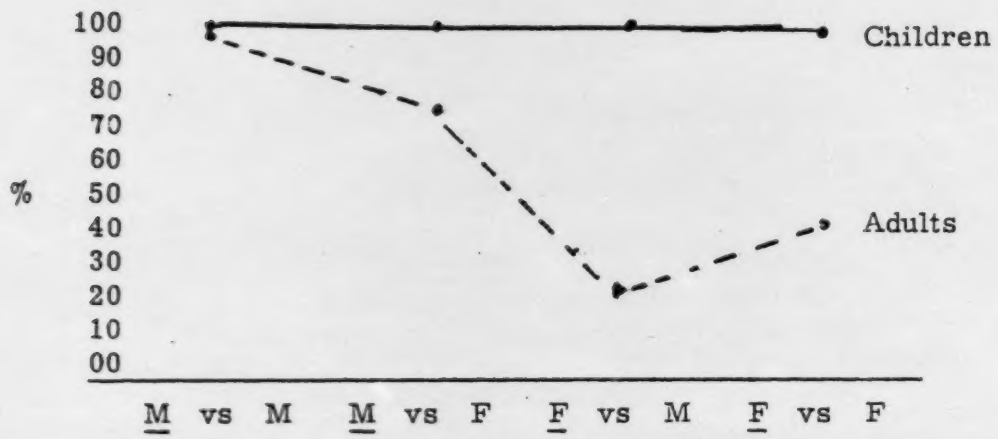

Figure 6. Percentage of winners who answered yes, indicating they thought practice would help by sex combination and age category. Sex of winner is underscored.

Q3 (Losers) I would get better and better if I played this a lot

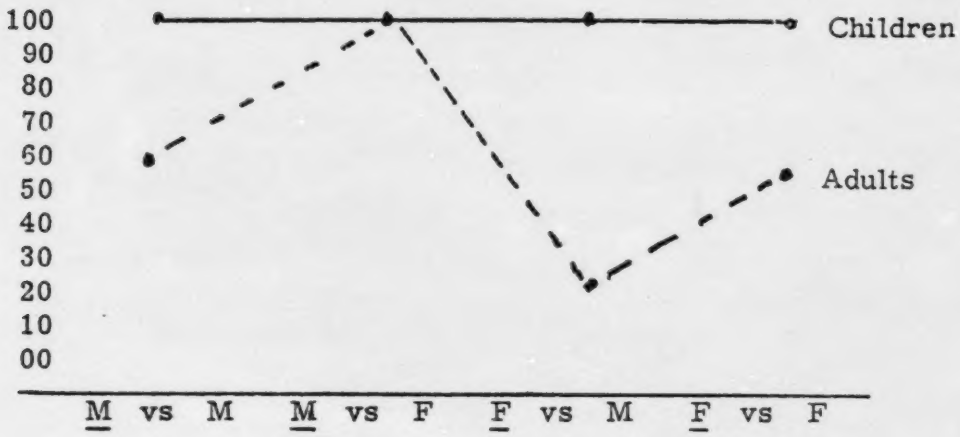

Figure 7. Percentage of losers who answered yes, indicating that they thought practice would help by sex combination and age category. Sex of loser is underscored.

Q4 (winners) I would get better and better if I tried harder and harder

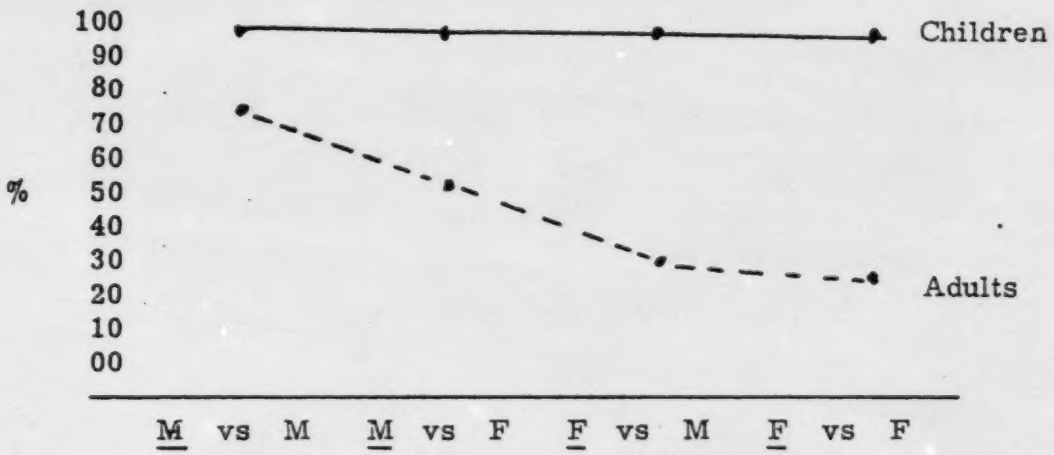

Figure 8. Percentage of winners who answered yes, indicating they thought more effort would help by sex combination and age category. Sex of winner is underscored.

Q4 (Losers) I would get better and better if I tried harder and harder

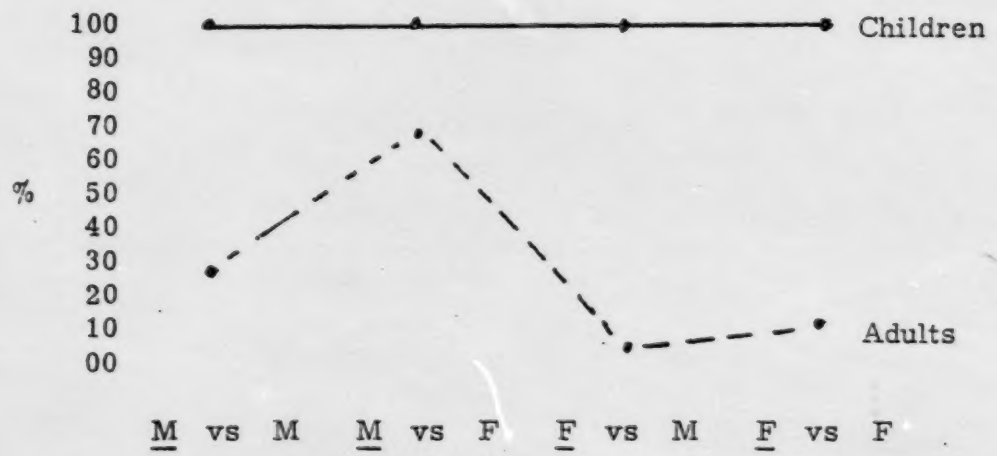

Figure 9. Percentage of losers who answered yes, indicating they thought more effort would help by sex combination and age category. Sex of loser is underscored.